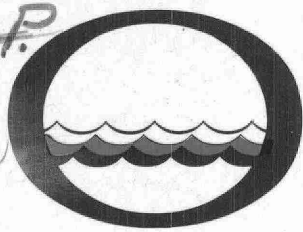


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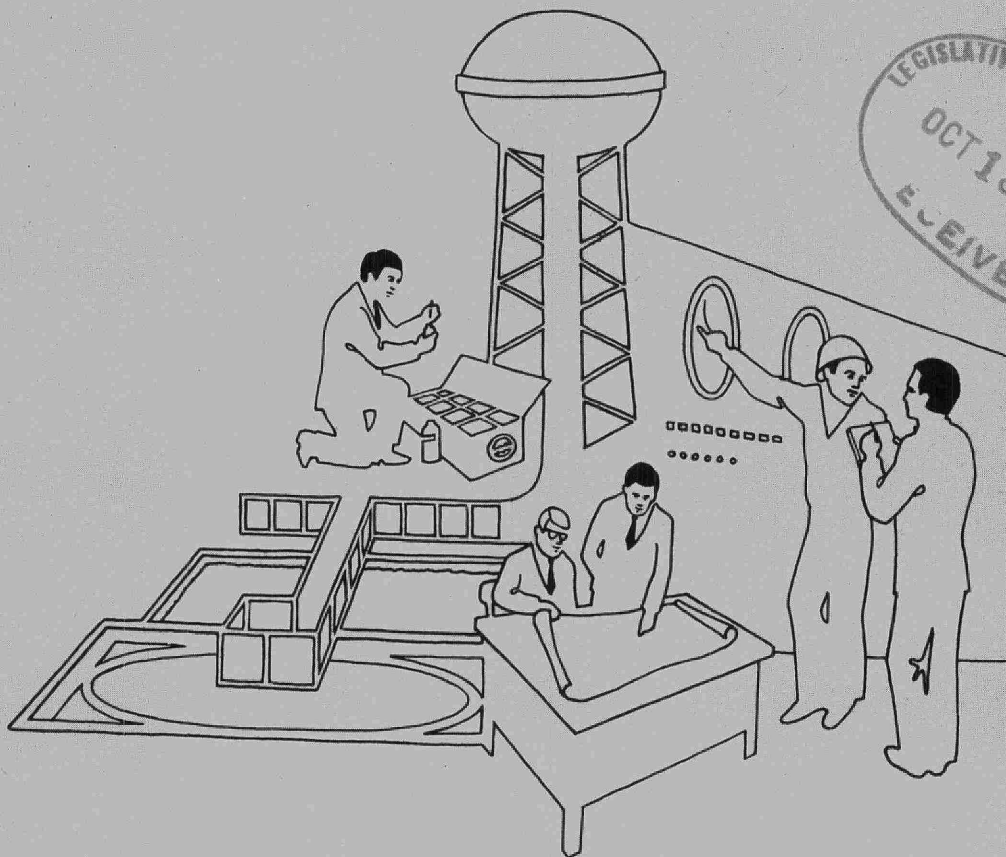


Water management in Ontario

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WATER POLLUTION SURVEY

OF THE

VILLAGE OF OMEMEE

COUNTY OF VICTORIA

- 1971 -

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THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
OF THE
VILLAGE OF OMEMEE
COUNTY OF VICTORIA

- 1971 -

WATER POLLUTION SURVEY

OF THE

VILLAGE OF OMEMEE

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WATER POLLUTION SURVEY

OF THE

VILLAGE OF OMEMEE

INTRODUCTION:

A water pollution survey was performed in the Village of Omemee. Samples for this survey were obtained on November 20, 1968, September 30, 1969, May 6, 1970, and November 5, 1970. Surveys of this nature are performed by the Ontario Water Resources Commission for the purpose of locating existing and potential sources of surface water pollution. Recommendations are then made regarding the abatement of these sources of pollution.

A similar survey was performed on November 2 and 3, 1964. At this time it was concluded that there was a need for the installation of a municipal sewage works.

INTERVIEWS WITH OFFICIALS:

During the course of this survey, discussions were held with the following officials:

Mr. R. Pogue, Clerk
Local Health Officials
M. Free, Reeve

VILLAGE OF OMEMEE:

The Village of Omemee is located on Hwy. 7 in the south-eastern part of the County of Victoria, mid-way between Lindsay and Peterborough. The Pigeon River flows in a north-easterly direction through Omemee and empties into Pigeon Lake approximately four miles

downstream from the village.

According to the 1970 Municipal Directory the population of Omemee is approximately 850.

WATER USES:

MUNICIPAL:

There is no municipal water works in the Village of Omemee. Instead, private wells are utilized. The Pigeon River receives the flows from the village storm drainage system and is expected to receive the effluent from any future sewage works.

RECREATIONAL:

A public bathing area is located on the west side of the Pigeon River north of the King Street bridge. There is some fishing in this area as well.

INDUSTRIAL:

A dam is located on the river at Omemee Elevators. River water is utilized for water power.

WATER SUPPLY:

The water supply in Omemee is provided by private wells. Many of these wells extend downward for approximately 60 feet where water is drawn from a gravel stratum. In the 1964 survey six out of sixteen wells tested showed the presence of coliform organisms, and all of the wells tested revealed a high concentration of iron. Subsequent sampling in 1968 however showed much improvement as indicated by the appended laboratory results.

SURFACE WATER DRAINAGE:

Surface drainage flows discharge via ditches or via storm sewer systems to the Pigeon River.

SEWAGE DISPOSAL FACILITIES:

Individual septic tank systems and privies are utilized. Well drilling records in Omeme indicate a clay overburden underlain by blue clay extending from approximately 15 feet to 60 feet. These soil conditions are not favourable for a properly functioning septic tank system. Associated with a high ground-water table, it is apparent that some sanitary waste will gain access to storm sewers and ditches and eventually the river.

SAMPLING PROCEDURE:

Samples were collected upstream and downstream of the village as well as from outfalls discharging to the river. The pertinent laboratory results are appended to this report. A map is also appended showing the locations of sampling points.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY RESULTS:

All the bacteriological tests were performed at the Peterborough Regional Health Laboratory whereas, the chemical analyses were performed at the Ontario Water Resources Laboratory in Toronto.

The parameters employed in determining the quality of the water samples are: total, suspended and dissolved solids, biochemical oxygen demand (B.O.D.), and the number of coliform organisms present.

The B.O.D. of sewage is a measure of the oxygen utilized

in decomposing organic matter to a stable condition. The test is carried out over a period of 5 days at an incubation of 20°C with the result being reported in parts per million (ppm). A high B.O.D. is indicative of organic or chemical pollution.

The analysis of solids includes test for suspended, dissolved and total solids. Suspended solids represents the amount of undissolved solids in suspension. Dissolved solids represents the amount of solids in solution. Total solids measures the combined suspended and dissolved solids. Land erosion, sewage, and industrial wastes are sources of suspended solids. Deposition of suspended solids in water can interfere with the habitat of aquatic life and with the operation of a water purification plant.

For bacteriological analysis, total and faecal coliform organisms are recorded. Faecal coliform organisms indicate intestinal pollution from man or animals. The total coliform count represents the total number of faecal and non-faecal coliform organisms present.

The OWRC objectives for water quality are indicated in the appended booklet, "Guidelines and Criteria for Water Quality Management in Ontario".

LABORATORY RESULTS:

The laboratory results of this survey show similar results to that of the previous survey. Extremely high bacteriological results were revealed in most of the private outfalls sampled. The bacteriological results increased in the river as it passed through

the village. These results are appended to this report.

PROPOSED SEWAGE WORKS:

A provincial sewage works project is being developed for the Village. At the time of completion of the report, the Ontario Municipal Board (OMB), had scheduled a hearing on the proposed rates for November 30, 1971. Assuming that OMB approval is obtained soon after the hearing, it is estimated that the works could be in operation by fall 1973. The sewage works in Omemee will consist of sanitary sewers, a prefabricated underground pumping station and a 20 acre, two-celled waste stabilization pond. The lagoon effluent will be discharged on a seasonal basis to a watercourse which drains into Pigeon Lake.

SUMMARY:

A water pollution survey was performed at the Village of Omemee to review water quality conditions. Samples were obtained throughout the storm drainage system from November 20, 1968 to November 5, 1970 at four different occasions. Additional samples were obtained of the Pigeon River to determine what effect the outfalls had on the river as it passed through the village.

The results were similar to the previous surveys showing sewage flows from the village storm drainage system to the Pigeon River. Due to these sewage flows, the bacteriological counts increased in the river as it flowed through the village.

RECOMMENDATIONS:

The proposed sewage works facilities should be installed
as soon as possible.

Prepared by: *A. D. McConnell*
per H. C. McNaughton,
Technician,
Division of Sanitary Engineering.

HCMcN:bm

Omeme Laboratory Results

Point No	Location	5-Day	Solids			Coliforms per 100 ml		Date
		BOD	Total	Susp	Diss	Total	Faecal	
TP.145.42D	Drainage ditch extending from Mary Street to Pigeon River at west side of	5.8	728	93	635	7,200	280	Nov 20/68
		90.	4,480	4,480	1,380	240,000+	240,000+	Sept 30/69
		18.	850	10	840	10,000,000+	340,000	May 6/70
		1.8	730	5	725	4,100	1,300	Nov 5/70
TP.145.07(W)W	Mary Street storm sewer - West Bank	56.	642	70	572	240,000+	240,000+	Nov 20/68
		20.	810	65	745	800,000+	800,000+	Nov 5/70
TP.145.07(E)W	Mary Street storm sewer - East Bank	9.4	714	10	704	85,000	85,000	Nov 20/68
		7.0	580	10	570	73,000	7,000	May 6/70
		12.	670	15	655	800,000+	800,000+	Nov 5/70
TP.145.05W	King Street storm sewer - South Side	23.	5,948	101	5,847	240,000+	240,000+	Nov 20/68
		3.5	1,110	10	1,100	220,000	44,000	May 6/70
		45.	740	60	680	800,000+	800,000+	Nov 5/70
TP.145.02W	King Street storm sewer - North Side	44.	768	85	683	240,000+	240,000+	Nov 20/68
		900.	1,220	320	900	240,000+	240,000+	Sept 30/69
		500.	2,500	1,630	870	10,000,000+	95,000	May 6/70
		8.	1,090	230	860	1,200	400	Nov 5/70
TP.144.56D	Drainage Ditch from Regal Stationery	360.	1,466	163	1,303	240,000+	240,000+	Nov 20/68
		1,800.	2,600	210	2,390	240,000+	240,000+	Sept 30/69
		60.	830	35	795	10,000,000+	10,000,000+	May 6/70
		48.	930	45	885	800,000+	800,000+	Nov 5/70
TP.145.41D	Ditch East Side of Sturgeon Street	13.	736	14	722	240,000+	21,000+	Nov 20/68
		2.5	270	5	265	240,000+	75,000	Sept 30/69
		12.	850	10	840	10,000,000+	340,000	May 6/70
		7.5	770	10	760	800,000+	110,000	Nov 5/70

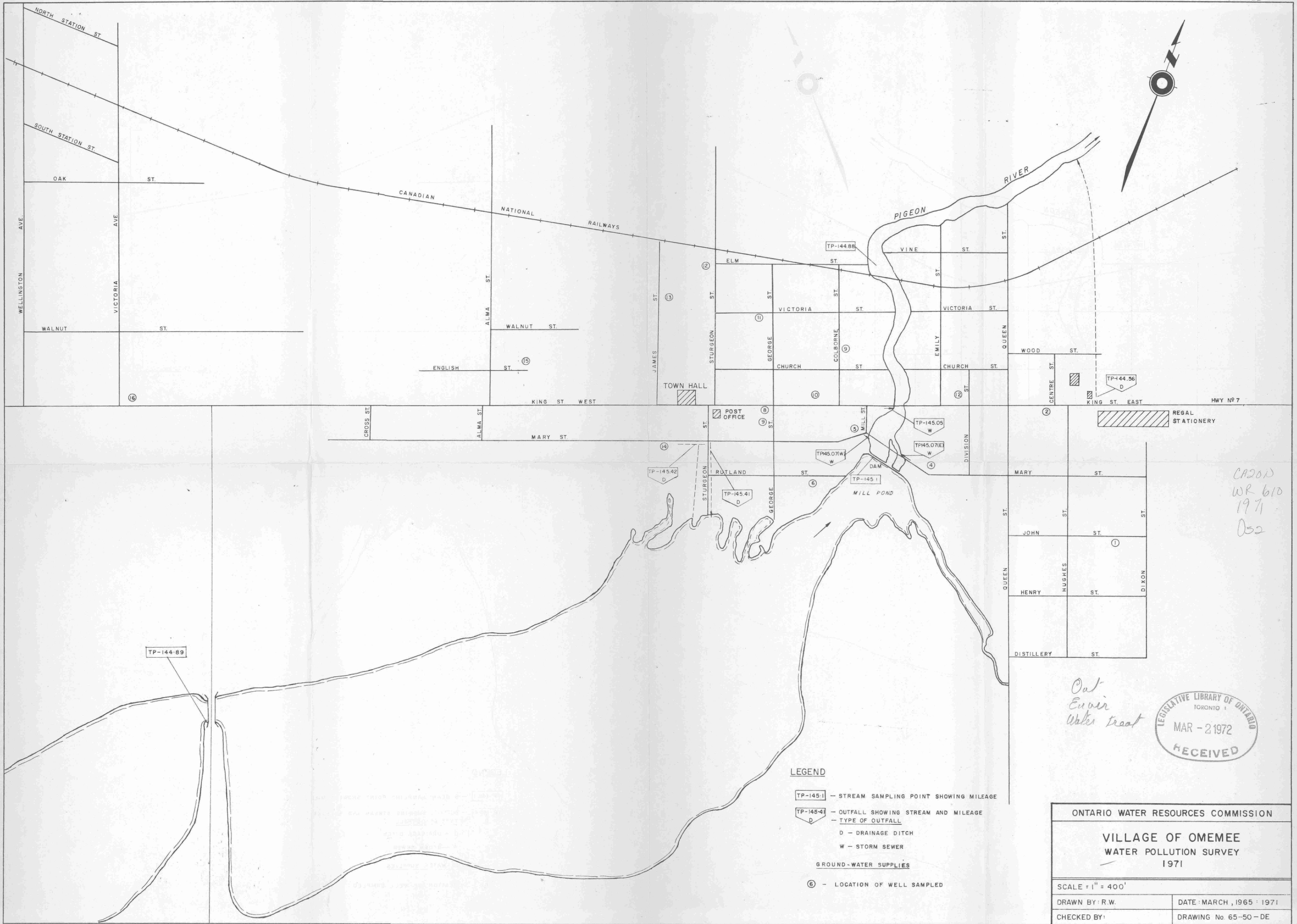
Omeme Laboratory Results Cont'd

Sampling Point No	Location	BOD	Total	Solids		Coliforms per 100 ml		Date
				Susp	Diss	Total	Faecal	
TP.145.1	Pigeon River at Dam	2.1	392	6	386	105	2	Nov 20/68
		1.4	150	5	145	155	12	Sept 30/69
		2.0	230	10	110	470	5	May 6/70
		1.0	240	10	230	250	50	Nov 5/70
TP.144.89	Pigeon River Upstream from Omeme	1.3	268	1	267	35	5	Nov 20/68
		1.2	190	5	185	0	0	Sept 30/69
		2.0	240	5	235	1,600	0	May 6/70
		1.0	270	5	265	0	0	Nov 5/70
TP.144.88	Pigeon River Downstream from Omeme	1.5	272	--	--	35	0	Nov 20/68
		2.5	210	5	205	80	0 ? 26	Sept 30/69
		2.0	240	5	235	26,000	900	May 6/70
		1.0	240	5	235	315	10	Nov 5/70

Ground Water Supplies

Village of Omemee Laboratory Results (1968)

<u>Sampling Point No</u>	<u>Location</u>	<u>Hardness</u>	<u>Alkalinity</u>	<u>Iron</u>	<u>Chloride as Cl</u>	<u>pH at Lab</u>	<u>Anionic Detergent as ABS</u>	<u>Coliforms per 100 ml</u>	
								<u>Total</u>	<u>Faecal</u>
11	Lady Eaton Elementary School Well	262	224	0.59	26	7.7	0.0	0	0
12	W. Wedlock - Well	306	221	0.16	55	7.8	0.0	0	0
13	W. Downing - Well	352	355	0.83	54	7.4	0.3	0	0
14	Canadian Legion Hall - Well	204	199	1.24	8	7.8	0.0	0	0
15	Chas. Brooks - Well	524	322	0.11	99	7.5	0.01	0	0
16	J. Evans - Well	206	202	1.04	5	7.8	0.0	0	0



LEGEND

- TP-145.1 - STREAM SAMPLING POINT SHOWING MILEAGE
- TP-145.41 D - OUTFALL SHOWING STREAM AND MILEAGE
- D - DRAINAGE DITCH
- W - STORM SEWER
- GROUND-WATER SUPPLIES
- ⑤ - LOCATION OF WELL SAMPLED

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ONTARIO WATER RESOURCES COMMISSION	
VILLAGE OF OMEMEE WATER POLLUTION SURVEY 1971	
SCALE 1" = 400'	
DRAWN BY: R.W.	DATE: MARCH, 1965 : 1971
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